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REMARKS

Claim Objections

The objection raised by the Examiner in Section 2 of the Office Action with regard to Claim 12 should be overcome by the enclosed amendments.

Claim Rejections Under 35 U.S.C. § 112

In Section 3 of the Office Action, the Examiner rejected Claims 1-10 and 12-20 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. More specifically, with regard to Claim 1, the Examiner objected to the term "a desired product", which has been replaced in the amended Claim 1. However, the Examiner asserted that "it is unclear as to the structural limitation the Applicants are attempting to recite by 'without passing through a solid or perforated diffuser section'". The structural limitation is specifically that Applicants avoid a pressure drop that would normally be provided by a solid or perforated diffuser section as shown in a number of the references originally cited by the Examiner. The structural limitation is that no such obstruction should be provided in the reactor of Applicants' invention.

With respect to Claim 3, the objected to term "can be" has been replaced.

With respect to Claim 7, the Examiner stated that it was unclear as to the structural limitation Applicants were attempting to recite by "a sparger surrounding at least a portion of the residue collection housing for introducing a gas within the residue collection housing". On page 5, starting at line 7, in the specification, the description of the preferred embodiment states that:

> Approximately 5% of the chlorine is introduced through a sparger 30 which encircles the greater portion of the circumference of an upper portion of the residue discharge conduit or collection or cylindrical discharge tube 18, below the housing 12. The sparger 30 introduces the chlorine at a horizontal or preferably downward angle, *e.g.*, 45°, to the horizontal to prevent particle sifting into the sparger. The downwardly directed gas from the sparger turns in the discharge tube in an upwardly direction towards the bed.

The sparger is shown in Figure 1 by reference character 30, surrounding at least a portion of the circumference of the residue collection housing 18 and the foregoing description explicitly describes that the sparger communicates gas to the interior of

the residue collection housing. It is implicit that to communicate the gas from the sparger to the interior of the residue collection housing there has to be an orifice communicating between the two plenums. The language of Claim 1 has been amended to make this clarification explicit.

The Examiner stated that with regard to Claim 12 it was unclear as to the structural limitation Applicants were attempting to recite by, "the central gas inlet, the plurality of peripheral gas inlet jets and sparger are structurally formed so that approximately . . . ." The Examiner was of the opinion that it was unclear as to what structural elements enabled the recited structures to establish the given fluidizing gas percentages and questioned where it was disclosed in the specification and drawings.

A designer of fluidized bed reactors of ordinary skill in the art understands how to specify plenum, conduit and orifice sizes for the various gas jets given the pressure drop and relative volume of gas to be introduced at each of the sets of orifices. The U.S. District Court for the Northern District of California stated in *Advanced Cardiovascular Systems v. Scimed Life Systems*, 96 Fed. Supp. 2d 1006, that "a patent claim is sufficiently definite if 'those skilled in the art would understand what is claimed when the claim is read in light of the specifications'." The court further stated that "mathematical precision should not be imposed for its own sake; a patentee has the right to claim the invention in terms that would be understood by persons of skill in the field of the invention." The percentages for the volume of chlorine emitted at the various sets of orifices can be found on lines 5 and 7 of page 5 and line 1 of page 6 of the specification. The same response applies to the objections raised to Claims 19 and 20. Support for Claim 19 can be found on page 6, starting at line 9, and support for Claim 20 can be found on page 5, starting at line 13.

With respect to Claim 13, the Examiner was of the opinion that it was unclear as to the structural limitation Applicants were attempting to recite by the phrase "in fluid communication with a fluidizing gas supply and respective ones or groups of the plurality of peripheral gas inlet jets." The specification at page 6, starting at line 13, specifically says that the orifices 24, which are the peripheral chlorine gas inlet jets, can be controlled individually by the controller 27. Claim 13 calls for the fluidized bed reactor of Claim 1, including control valves in fluid communication with a fluidizing chlorine gas supply and respective ones or groups of the plurality of

peripheral gas inlet jets for individually controlling the quantity of chlorine gas passing through the respective plurality of peripheral chlorine gas inlet jets. Thus, Claim 13 states that control valves are connected to individual ones of the peripheral chlorine gas inlet jets in a manner so they can be controlled individually . A fluidized bed reactor designer of ordinary skill would have no difficulty specifying an arrangement of pipes, valves and inlet jets that would satisfy the criteria set forth in Claim 13. Accordingly, it's respectfully asserted that Applicants' amended claims satisfy the requirements of 35 U.S.C. § 112.

Claim Rejections Under 35 U.S.C. § 102

In Section 4 of the Office Action, the Examiner rejected Claims 1, 2 and 13-15 under 35 U.S.C. § 102(b) as being anticipated by Chen et al. In *In re Marshall*, 578 F.2d 301, 198 U.S.P.Q. 344 (C.A.F.C. 6/30/78) the court stated: "To constitute an anticipation, all material elements recited in a claim must be found in one unit of prior art." The court further stated: "An accidental or unwitting duplication of an invention cannot constitute an anticipation." Chen et al. teaches a fluidized bed for gasifying coal in which the interrelation between the volumes of gas that are introduced at the various sets of orifices is not as critical as it is in a chlorinator. While Chen et al. provides a table that identifies the superficial velocity of the gas introduced at the various orifices the reference does not identify the relative volumes of gas introduced at those velocities. Additionally, Chen et al. employs a distribution plate that has holes at the bottom through which the air introduced at the central pipe 16 passes through as shown by the plume 46. That's contrary to the teaching of Applicants' wherein the gas from the central pipe enters the reaction zone, which is represented by reference character 48 in the Chen et al. figures, without passing through a solid or perforated diffuser section. The distribution plate is present in both embodiments shown in Figure 2 and 4. The modification provided in Figure 4 eliminates the inclined surface 20 and the steamline employed to fluidize the annulus. The reference states at the top of column 4 that all other parts of the apparatus are the same as shown in figure 1 and 2; that would include the distributor plate 28 as shown by the solid horizontal line in Figure 4. Additionally, Chen et al. does not teach a sparger as now called for in Applicants' Claim 1.

Claim 13 calls for the plurality of peripheral chlorine gas inlet jets to be

individually controlled to control the quantity of chlorine passing through the respective jets. The Examiner is equating Applicants' peripheral chlorine gas inlet jets to the orifices 26 in Chen et al., but the valves shown in Chen et al. that are connected to the orifices 26 are not shown to control those orifices individually, nor is there any teaching in Chen et al. to that affect. Accordingly, Claim 13 distinguishes over the teaching of Chen et al. for the reasons set forth with regard to Claim 1 as well as for the individual limitations that it presents.

Claims 2, 14 and 15 are dependent upon Claim 1 and distinguish over Chen et al. for the reasons set forth above with regard to Claim 1. Additionally, since the application addressed in Chen et al. is so different from that of Applicants' and the environments in which they operate are so different, it is believed that the design of Chen et al. would not reasonably function as a chlorinator as claimed by Applicants.

Thus, Applicants have shown that the rejection set forth in Section 4 of the Office Action is improper. Accordingly, it is respectfully requested that the rejection be withdrawn.

In Section 5 of the Office Action, the Examiner rejected Claims 1-3, 7-9, 14-15 and 18 under 35 U.S.C. § 102(b) as being anticipated by Uemura et al. Uemura et al. teaches an incinerator for burning waste including a hollow body having an opened upper end and opened lower end. A bottom plate closes the lower end, a central opening provided in the bottom plate introduces pressurized oxidizing gas into the hollow body. A plurality of circumferentially disposed openings are provided in the bottom plate for introducing pressurized oxidizing gas into the hollow body. An oxidizing gas feeding means is provided for supplying gas to the central opening and the circumferentially disposed openings. A residue collection housing mates at one end with the lower portion of the reactor housing, below the reaction zone, in fluidized communication with the reaction zone and has an inclined lower wall for directing residue ash from the reaction zone to a residue collection port through which the residue is extracted. What Uemura et al. do not teach is "a sparger including a plurality of chlorine gas orifices positioned around at least a portion of the circumference of the interior of the residue collection housing for introducing chlorine gas within the residue collection housing to maintain reaction process residue below a given size in suspension and directed back into the reaction zone while enabling

agglomerates of reaction process residue above the given size to drop towards the collection port." In column 4, starting at line 36, Uemura et al. teaches "Surrounding the pressurized air feed pipe 24 is a pressurized air chamber 26. Air is fed through nozzles 27 formed in the pipe wall of the pressurized air feed pipe 24 so that the pipe portion can be prevented from being blocked by combustion residue." That is why Uemura et al. provides air into the residue collection pipe 24 through the nozzles 27. The nozzles 27 are not designed to refluidize the ash residue but to assure that the pipe remains unblocked. Additionally, there is no mention in Uemura et al. that the air disposed through the nozzle 16, the nozzles 27 and the pipe 19, are coordinated so the volume of gas emitted by each is a fixed predetermined ratio that maintains good mixing, minimizes defluidization of the reaction products, and promotes reaction of the reactant materials within the reaction zone.

Thus, as stated in *In re Marshall*, Ibid, Uemura et al. fails to teach all the material elements recited in Applicants' Claim 1 and thus fails to anticipate Applicants invention recited in Claim 1. Claims 1, 2, 8-9, 14-15 and 18 similarly distinguish over the teachings of Uemura et al. for the reasons stated for Claim 1. Accordingly, it respectfully asserted that the rejection stated in Section 5 of the Office Action is improper and should be withdrawn. Claims 3 and 7 have been cancelled.

In Section 6 of the Office Action, Claims 1-3 and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nishi et al. Nishi et al. teaches a coal gasification fluidized bed reactor that does not teach the use of a sparger "including a plurality of chlorine gas orifices positioned around at least a portion of the circumference of the interior of the residue collection housing for introducing chlorine gas within the residue collection housing to maintain reaction process residue below a given size in suspension directed back into the reaction zone while enabling agglomerates of reaction process residue above the given size to drop towards the collection port." Nishi et al. does not employ the minimum fluidization principal to maintain the reactants fluidized as Applicants do, but instead uses the terminal velocity theory by providing the constriction 3 in the residue collection pipe 2 to increase the velocity of the oxidizing agent in the constricted area to re-entrain the reactants. Additionally, Nishi et al. does not coordinate the volume of gas supplied through the gas inlets 5 and 8 so that the volume of gas emitted by each is a fixed

predetermined ratio that maintains good mixing, minimizes defluidization of the reaction products and promotes reaction of the reactant materials within the reaction zone. As stated previously, this latter requirement is believed not to be critical to Nishi et al.'s operation, though it is to the successful operation of Applicants' claimed apparatus.

Thus, Applicants have shown wherein Nishi et al. fails to teach several of the elements of Applicants' invention and therefore cannot rightfully be considered as anticipating Applicants' Claim 1. Accordingly, it is respectfully asserted that the rejection applied in Section 6 of the Office Action under 35 U.S.C. § 102(b) is improper and should be withdrawn.

Rejections Under 35 U.S.C. § 103

In Section 7 of the Office Action, Claims 4-6 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishi et al. in view of Bogner et al. The deficiencies of Nishi et al. with regard to Claim 1 are set forth above. Claim 4 calls for the fluidized bed reactor of Claim 1 including a feeder positioned at the residue collection port for removing the residue from the collection housing. Claim 5 calls for the fluidized bed reactor of Claim 4 wherein the feeder is a screw or rotary feeder. Claim 6 states that the feeder continuously removes the residue from the reactor during operation and Claim 17 states that the feeder removes the residue from the reactor in batches during operation. Bogner et al. teach a process for optimizing the air separation and cooling operation of a fluidized bed gasifier. Carbonaceous material and oxygen is conveyed to the reaction zone by the inlet tube 18/118. At the same time steam is conveyed into the ash annulus through the inlets 32/150 and recycled product gas is introduced into the lower ash annulus at sparger 28/128 and functions in conjunction with the steam emitted from the annuluses 150/32 to refluidize the char and separate it from the ash. As previously noted, Nishi et al. employs the terminal velocity theory to refluidize the reactants and therefore would not consider using the multiple spargers of Bogner et al. As stated in *In re Bell*, 991 F.2d 781, 26 U.S.P.Q.2d 1529 (C.A.F.C., 4/20/93) "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." The court further said "The examiner has the burden of establishing a *prime facie* case."

In this case, Applicants teach injecting the same gas from each of the orifices while Bogner et al. teach injecting three different fluids from the three separate orifices. Additionally, Nishi et al. teach an entirely different process for refluidizing the reactants. Furthermore, there is no teaching in either reference to coordinating the volume of gas flow from each of the orifices so the volume of chlorine gas emitted by each is a fixed predetermined ratio that maintains good mixing, minimizes defluidization of the reaction products and promotes reaction of the reactant materials within the reaction zone. Accordingly, Applicants' Claim 1 distinguishes over Nishi et al. in view of Bogner et al. The dependent Claims 4-6 and 17 distinguish for the same reason. Additionally, Claim 17 calls for the fluidized bed reactor of Claim 1 including a feeder positioned at the residue collection port for removing the residue from the collection housing on a batch basis. While Bogner et al. does teach a starwheel feeder 21/121 for removing the ash from the ash annulus it does so on a continuous basis, though the rate of the feed may vary. There is no teaching whatsoever in the reference to removing the residue on a batch basis. Accordingly, Claim 17 further distinguishes for the additional limitation that it introduces.

Thus, Applicants have shown wherein the rejection of Claims 4-6 and 17 under 35 U.S.C. § 103(a) set forth in Section 7 of the Office Action is improper. Accordingly, withdrawal of the rejection is respectfully requested.

In Section 8 of the Office Action, Claims 7, 9 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishi et al. in view of Miller, Jr., et al. In support of this rejection, the Examiner asserted that:

> With respect to Claim 7, Nishi et al. (FIG. 2, Abstract) further disclose an auxiliary gasifying agent supplying pipe 8 for introducing gas within the residue collection housing to maintain reaction process residue below a given size (i.e., dust, ash) in suspension and directed back into the conical section 01 while enabling agglomerates of reaction process residue above a given size (i.e., agglomerated ash) to drop towards the collection port 02. The supplying pipe 8 of Nishi et al. structurally meets the claim of a 'sparger', since a sparger is merely defined as a means for introducing air or gas. (*The American Heritage®Dictionary of the English Language*, 4th Edition Copyright 2000 by Houghton Mifflin Company. Although Nishi et al. are silent as to whether the supplying pipe 8 may surround at least a portion of the residue collection housing, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was

> made to configure the supplying pipe of Nishi et al. to surround the residue collection housing, on the basis of suitability for the intended use and absent showing unexpected results thereof, since such a sparger configuration would provide an even distribution of fluidization gas and is further conventionally known in the art as evidence by Miller, Jr. et al. In particular, Miller, Jr. et al teach a fluidized bed reactor comprising a residue collection housing (defined by outlet pipe 20) and a sparger (comprising circular chambers 51, 62, which introduce fluidizing gas into the reactor via slots 62, 63) surrounding at least a portion of the residue collection housing (column 2, lines 53-63; FIG. 1, 2).

As previously stated with regard to Nishi et al. it is obvious from the difference in the two designs that Applicants are employing the minimum fluidization principle to refluidize the reactants while Nishi et al., in the constricted portion of the residue collection tube, is using the terminal velocity theory to accomplish refluidization of the reactants. Due to these different approaches, there would be no benefit in having the auxiliary gasifying agent supplying pipe 8 surround the residue collection tube 2 in Nishi et al.'s design. Miller, Jr. et al. teaches an improved fluidized bed apparatus for combusting or reacting mixtures of combustable and noncombustible waste matter. The improvement is said to reside in a distributor plate having sides sloping toward the bottom of the apparatus and having an inlet for solid feed in the side of the distributor plate. A pipe extends downwardly through the base of the distributor plate and functions to capture noncombustibles in the solid feed. Secondary reaction zones 47 and 49 reside in the residue collection pipe 20. As stated in column 3, starting at line 9:

> After a sensible quantity of nonreactible or nonreacted materials have collected in the capture bed 47, the valve 41 is opened and fluidizing gas is admitted to the discharge zone 49 by opening the valve 40. Thus, reaction is continued in these zones. Opening of the valve 41 drops the contents of the capture bed 47 into the discharge zone 49, whereupon valves 40 and 41 are closed. Then valve 42 is opened and the nonreactor material, together with the residual particles of the bed, are dropped into a hopper truck 71 for removal.

The manifolds 51 and 52 do not provide a sparger positioned around at least a portion of the circumference of the interior of the residue collection housing for introducing a gas within the collection housing to maintain the reaction process residue below a given size in suspension and directed back into the reaction zone as described in

Claim 1, but provide for a separate zone in the residue collection pipe for continuing the reaction. Furthermore, there is no teaching in either Nishi et al. or Miller, Jr. et al. for coordinating the volume of gas emitted from the separate sets of orifices as explained above. As stated in *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (C.A.F.C., 8/11/92):

> The mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of modification . . . Here, the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has stated that [o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Claims 9 and 12 similarly distinguish over Nishi et al. in view of Miller, Jr. et al. With respect to Claim 12, the Examiner asserted that:

> Nishi et al. structurally meets the claim since the recited elements are fully capable of delivering a given percentage of fluidizing gas to the reactor. Furthermore, the specific percentage of fluidizing gas is not considered to confer patentability to the claim since the precise percentage would have been considered a result effective variable by one having ordinary skill in the art. Also, it is noted that the present specification sets forth on page 3, lines 1-7, that the claimed ratio, is at best, a preferred limitation.

In support of this proposition, the Examiner relied on *In re Boesch*, 617 F.2d 272, 205 U.S.P.Q. 215 (CCPA 1980), stating that "it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art." However, the Examiner is ignoring the fact that all of the references deal with a different process than Applicants are addressing and the parameters so chosen and coordinated are an important factor in Applicants' process. Thus, the Examiner is willfully ignoring an important limitation that none of the references recognize. Therefore, it is respectfully asserted that Claim 12 further distinguishes over the references for the limitations that it introduces.

Thus, Applicants have shown wherein the subject matter of former Claim 7,

that has now been incorporated in amended Claim 1, Claim 9 and Claim 12 patentably distinguish over the teachings of Nishi et al. in view of Miller, Jr. et al. Accordingly, it is respectfully requested that the rejection presented in Section 8 of the Office Action be withdrawn.

In Section 9 of the Office Action, Claims 8 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishi et al. in view of Miller, Jr. et al., as applied to Claim 7 above, and further in view of Worley et al. In support of this rejection with respect to Claim 8, the Examiner asserted that the collective teachings of Nishi et al. and Miller, Jr. et al. are silent as to whether the sparger gas may be introduced at a downwardly directed angle. The Examiner relied on Worley et al. for teaching of a sparger that introduces the gas at a downwardly directed angle (column 2, lines 60-63; column 3, lines 34-39).

Applicants' Claim 8, which depends upon Claim 1, calls for a sparger including a plurality of chlorine gas orifices positioned around at least a portion of the circumference of the interior of the residue collection housing and below the central chlorine gas or chlorine gas and solids inlet for introducing chlorine gas within the residue collection housing at a downwardly directed angle to the central axis of the collection housing to maintain reaction process residue below a given size in suspension and directed back into the reaction zone. As stated with regard to the response to the rejection set forth in Section 8 of the Office Action, neither Nishi et al. or Miller, Jr. et al. teach this feature. Nor do they teach coordinating the volume of gas injected at the various sets of orifices so that each is a fixed predetermined ratio that maintains good mixing, minimizes defluidization of the reaction products and promotes reaction of the reactant materials within the reaction zone. Worley et al. teaches a gas distributor for distributing high temperature reaction gases to a fluidized bed of coal particles in a coal gasification process. The distributor 20 that the Examiner refers to is the main gas injection inlet that fluidizes the bed and corresponds more closely to the function of Applicants' central chlorine gas or chlorine gas and solids inlet and not to Applicants' sparger. If one would attempt to apply the teachings of Miller, Jr. et al. to Nishi et al. one would insert the distributor plate 18 of Miller, Jr. et al. into the conical opening 1 of Nishi et al. It is not clear from that point how one could apply the teachings of Worley et al. since the

distributor 20 of Worley et al. is a replacement for the distributor plate 18 of Miller, Jr. et al. In *In re Ehrreich*, 590 F.2d 902, 200 U.S.P.Q. 504 (CCPA, 1979), the court stated that in combining references under Section 103 "we must consider the entirety of the disclosure made by the references and avoid combining them indiscriminately." Here, it would appear that the Examiner is applying hindsight and the benefit of Applicants' teachings to reconstruct Applicants claims by piecemealing different portions of the references in a manner in which neither of the references intended those teachings to be applied.

Claim 20 calls for the fluidized bed reactor of Claim 1 wherein the sparger is structurally formed so that the pressure drop across the sparger is at least 30% of the pressure drop across the reaction zone. The Examiner stated in support of the rejection of Claim 20 that Worley et al. teach that it is important that the distributor have a high pressure drop, but the Examiner acknowledges that no specific pressure drop was taught in the reference. However, the Examiner felt that the precise percentage would have been considered a result effective variable by one having ordinary skill in the art. First of all, Claim 20 depends upon Claim 1 and distinguishes for the reasons stated previously. Additionally, in Worley et al. the distributor 20 is responsible for substantially the entire pressure drop across the reaction zone that is attributable to the gas inlet injectors. As Applicants have previously mentioned the relative chlorine gas inlet parameters, e.g., relative input volume and pressure drop, are important criteria to the success of the operation of Applicants' fluidized bed reactor and should not be dismissed as being obvious over art that is being applied to an entirely different process, especially when none of that art describes, teaches or shows the specific specifications in Applicants' claims.

Thus, Applicants have shown wherein the rejection in Section 9 of Claims 8 and 20 under 35 U.S.C. § 103(a) is improper. Accordingly, it is respectfully requested that the rejection set forth in Section 9 be withdrawn.

In Section 10 of the Office Action, Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishi et al., as applied to Claim 1 above, and further in view of Haldipur. Claim 10 calls for the fluidized bed reactor of Claim 1 wherein the peripheral chlorine gas inlet jets are directed at a downward angle to a line perpendicular to the central axis of the reactor housing. Haldipur does teach a gas

distributor for distributing high temperature reaction gases to a fluidized bed of coal particles in a coal gasification process that employs a plurality of peripheral gas jets 38 provided at a downward angle to a line perpendicular to the central axis of the reactor housing. However, Haldipur does not cure the other deficiencies noted for the teachings of Nishi et al. in respect of Claim 1 and therefore Claim 10 should similarly be allowable. Accordingly, the rejection in Section 10 of the Office Action to Claim 10 under 35 U.S.C. § 103(a) is improper and should be withdrawn.

In Section 11 of the Office Action, Claims 13-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishi et al. as applied to Claim 1 above and further in view of Chen et al. Claim 13 calls for the fluidized bed reactor of Claim 1 including control valves in fluid communication with a fluidizing chlorine gas supply and respective ones of the plurality of peripheral chlorine gas inlet jets for individually controlling the quantity of chlorine gas passing through the respective plurality of peripheral chlorine gas inlet jets. Claim 14 calls for the fluidized bed reactor of Claim 1 wherein the plurality of peripheral chlorine gas inlet jets includes a plurality of chlorine gas jets at each of said elevations respectively positioned around the circumference of the reactor housing. The Examiner took "Official Notice" that the provision of control means such as control valves, for regulating process conditions is conventionally known in the art. Chen et al. was cited as teaching the use of control valves for regulating gas flow to a fluidized bed reactor. Nishi et al. does not teach regulating the flow to any of the gas inlet jets and Chen et al. teaches a single valve that controls all of the peripheral inlet jets 26. There is no teaching in any of the references to controlling the peripheral gas inlet jets which is why the Examiner is taking "Official Notice" to render obvious the claims. In Section 706.02(j) of the MPEP, the *Manual of Patent Examining Procedure* states:

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (all references when combined) must teach or suggest all the claim limitations. [*emphasis added*]. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in a prior art and not based on applicant's disclosure.

Since there is no teaching or suggestion in any of the art of record, it is therefore Applicants' position that the rejection of Claim 13 is improper and should be withdrawn.

Claims 14-16 are either directly or indirectly dependent upon Claim 1 and therefore distinguish for the reasons stated above with regard to Claim 1. Accordingly, the rejection in Section 11 is improper and should be withdrawn.

In Section 12 of the Office Action, Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishi et al., as applied to Claim 1 above, and further in view of Worley et al. Claim 19 calls for the fluidized bed reactor of Claim 1 wherein the plurality of peripheral chlorine gas inlet jets are structurally formed so that the pressure drop across the plurality of peripheral chlorine gas inlet jets is at least 30% of the pressure drop across the reaction zone. In support of this rejection, the Examiner asserts that Nishi et al. are silent as to whether the plurality of peripheral gas jets 06 may be structurally formed so that the pressure drop across the inlet jets is at least 30% of the pressure drop across the reaction zone. However, the Examiner asserts the apparatus of Nishi et al. meets the claim since the inlet jets are inherently capable of establishing a given pressure drop, citing Worley et al. which teaches that the diffuser should have a high pressure drop, though no specific pressure drop is taught in Worley et al. First of all, the peripheral gas jets of Applicants are not a diffuser and second of all, as mentioned in response to the rejections of Claim 20, the specifications of gas flow at the various sets of inlet orifices of Applicants' invention are extremely important to the success of the operation of Applicants' apparatus and should not be summarily dismissed as obvious without some teaching or suggestion in the references to Applicants' specific limitations. As stated in *In re Fritch*, Ibid., "The mere fact that the prior art may be modified in the manner suggested by the Examiner does make the modification obvious unless the prior art suggested the desirability of the modification." Here, no such suggestion exists.

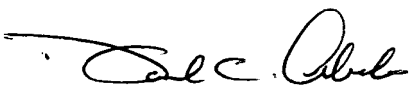
Thus, the rejection to Claim 19 under 35 U.S.C. § 103(a) as being unpatentable over Nishi et al. in view of Worley et al. is improper. Accordingly, it is respectfully requested that the rejection set forth in Section 12 of the Office Action be withdrawn.

Claim 21 has been added to this application and calls for the fluidized bed reactor of Claim 1 wherein the reactor housing comprises graphite. It is respectfully believed that Claim 21 distinguishes over the references for the distinguishing aspects previously noted above for Claim 1 as well as for the individual limitation that it introduces and should thus be allowable.

SUMMARY AND CONCLUSION

Thus, Applicants have shown wherein Claims 1, 2, 4-6, 8-10, 12-21 patentably distinguish over the art and should therefore be allowable. Accordingly, reconsideration, allowance and passage to issue of this application are respectfully requested.

Respectfully submitted,



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